



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/002,202

12/05/2001

Motoyasu Taguchi

Q67597

2154

7590

02/08/2006

SUGHRUE, MION, ZINN
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3213

EXAMINER

PATHAK, SUDHANSHU C

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,202

Applicant(s)

TAGUCHI, MOTOYASU

Examiner

Sudhanshu C. Pathak

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on December 5th, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 5th, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-to-4 are pending in the application.

Information Disclosure Statement

2. The information disclosure statement filed on July 30th, 2004 & January 20th, 2004 list reference(s) that have already been listed in different filed IDS and have been considered and initialed therefore they are not considered again. This IDS has been placed in the application file, but the information referred to therein has not been considered as to the merits. The IDS dated July 30th, 2004 discloses US Patent (5,652,764), this is also listed in the IDS dated August 8th, 2003. The IDS dated July 30th, 2004 discloses (EP 0 813 313 A2) this is also listed in the IDS dated August 8th, 2003. The IDS dated January 20th, 2004 discloses (L.Yue, "Analysis of Generalized Selection Combining Techniques") this is also listed in the IDS dated August 8th, 2003.

Specification

3. The specification on Page 1, lines 23-25 discloses "Finger unit (inverse spreader unit).....finger unit (phase corrector unit).....each comprises a plurality of finger circuits", this is further described on Page 6, line 1-3 and in Fig.'s 3-4, elements 4-5. It is not clear as to what the difference is between the inverse spreader unit and the phase corrector unit and furthermore they should be designated separately if they do not have the same function. Furthermore, the Specification on Page 1, lines 23-25 discloses the "Finger unit.....each comprises a plurality of

finger circuits.....", however Fig. 2 discloses a finger circuit does not disclose a desreader.

Claim Objections

4. Claims 1 & 3 are objected to because of the following informalities:

Regarding to Claim 1, It is not clear from the claim language as to what is being claimed, the claims discloses a plurality of first finger means and a plurality of second finger means, these means are not disclosed in the specification. These means actually refer to an inverse spreader unit and a phase corrector unit respectively as disclosed in the specification.

A possible example of the claim language is proposed (the claim rejections will be based on the proposed claim language): "A CDMA receiver terminal comprising: a plurality of first finger means each for inversely spreading, and demodulating signals transmitted from a base station using two antennas in a transmission diversity mode; a plurality of second finger means each connected with each of said plurality first finger means, each of said second finger means comprising: means for separating the inverse spread signal from one antenna of said base station from the signal transmitted from the other antenna of said base station; means for correcting the phase of the respective inverse spread data; and means for determining the validity of the signals transmitted from the two antennas of the base station wherein stop supplying an operating clock to said means for correcting the phase of the inverse spread signal when the signal is determined as invalid." Appropriate correction is required.

Regarding to Claim 3, it is not clear as to what is being claimed, the claim refers to the timing means before the clock supplying means.

A possible example of the claim language is proposed (the claim rejections will be based on the proposed claim language): "The CDMA receiver terminal according claim 2 further comprising: a clock supplying means for supplying a operating clock to said first finger means and said second finger means; a timing correcting means for generating a timing control pulse signal for correcting the timing of operating clock of each of the said first finger means by applying the timing control pulse signal to said first finger means; and means for stop supplying said timing control pulse signal from said timing correcting means and the operating clock from said clock supplying means when said second finger means determines that both signals transmitted from the two antennas of said base station are invalid." Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Shoishiro (EP-0 813 313 A2) in further view of Haartsen (5,842,037).

Regarding to Claim 1, the AAPA discloses a CDMA receiver terminal (Fig. 1, element 2) comprising: a plurality of first finger means each for inversely spreading, and demodulating signals transmitted from a base station using two antennas in a transmission diversity mode (Fig. 1 & Specification, Page 1, lines 18-25 & Specification, Page 2, lines 1-6); a plurality of second finger means each connected with each of said plurality first finger means, each of said second finger means (Fig. 2 & Specification, Page 1, lines 18-25 & Specification, Page 2, lines 1-6) comprising: means for separating the inverse spread signal from one antenna of said base station from the signal transmitted from the other antenna of said base station (Fig. 2 (separation of the signal after the phase estimation circuit) & Specification, Page 1, lines 18-25 & Specification, Page 3, lines 1-13); means for correcting the phase of the respective inverse spread data (Fig. 2, elements 18-19 & Specification, Page 2, lines 7-25 & Specification, Page 3, lines 1-11). However, the AAPA does not disclose means for determining the validity of the signals transmitted from the two antennas of the base station wherein stop supplying an operating clock to said means for correcting the phase of the inverse spread signal when the signal is determined as invalid.

Shoishiro discloses a mobile communication receiver of a spread spectrum communication system comprising a plurality of fingers (Abstract, lines 1-4 & Specification, Page 3, lines 15-18). Shoishiro further discloses disspreading the received signal in each finger (Specification, Page 2, lines 22-33). Shoishiro further discloses means for determining the validity of the signals received wherein

controlling the power on/off of the fingers based on the validity (Abstract, lines 4-12 & Specification, Page 3, lines 24-40 & Specification, Page 4, lines 1-13 & Specification, Page 5, lines 10-59 & Fig. 1, elements 19-22 & Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Shoishiro teaches means for determining the validity of the signals received wherein controlling the power on/off of the fingers based on the validity and this can be implemented in the CDMA receiver terminal as described in the AAPA so as to reduce the power consumption of the receiver by operating only the desired finger operations without an increase in the error of the received data. However, the AAPA in view of Shoishiro does not explicitly disclose removing the operating clock to the phase operating means.

Haartsen discloses a receiver in a wireless communication system comprising a transceiver and a processor (Fig. 1, elements 10, 12 & Column 1, lines 5-10, 21-46 & Column 2, lines 44-57). Haartsen further discloses implementing the processor in a power-down mode by removing the clock of the processor (Column 3, lines 26-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Haartsen teaches implementing a power-down mode by removing a clock in a processor and this can be implemented in the receiver as described in the AAPA in view of Shoishiro so as to power off/on the operations of the desired finger based on the validity of the signal in each finger by removing/adding the clock so as to provide a simple switch for the reduction of power of the receiver.

Regarding to Claim 2, the AAPA in view of Shoishiro in further view of Haartsen discloses a plurality of first finger means; a plurality of second finger means said second finger means comprising: means for separating the inverse spread signal from one antenna of said base station from the signal transmitted from the other antenna of said base station; means for correcting the phase of the respective inverse spread data as described above. Shoishiro further discloses each of said second finger means includes means for determining the validity for a signal transmitted from each antenna said base station based on the level of an electric field generated by the signal (Abstract, lines 4-12 & Specification, Page 3, lines 24-40 & Specification, Page 4, lines 1-13 & Specification, Page 5, lines 10-59 & Fig. 1, elements 19-22 & Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that AAPA in view of Shoishiro in further view of Haartsen satisfies the limitation of the claim.

Regarding to Claim 3, the AAPA in view of Shoishiro in further view of Haartsen discloses a plurality of first finger means; a plurality of second finger means said second finger means comprising: means for separating the inverse spread signal from one antenna of said base station from the signal transmitted from the other antenna of said base station; means for correcting the phase of the respective inverse spread data wherein each of said second finger means includes means for determining the validity for a signal transmitted from each antenna said base station based on the level of an electric field generated by the signal as described above. The AAPA further discloses a clock supplying means for supplying a operating clock

to said first finger means and said second finger means (Fig. 2, element 16 & Specification, Page 2, lines 14-16); a timing correcting means for generating a timing control pulse signal for correcting the timing of operating clock of each of the said first finger means by applying the timing control pulse signal to said first finger means (Specification, Page 2, lines 2-6).

Haartsen discloses means for stop supplying said timing control pulse signal from said timing correcting means and the operating clock from said clock-supplying means (Column 3, lines 26-55 (interrupt signal)). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that AAPA in view of Shoishiro in further view of Haartsen satisfies the limitation of the claim.

Regarding to Claim 4, the AAPA in view of Shoishiro in further view of Haartsen discloses a plurality of first finger means; a clock supplying means; a timing correcting means; a clock stopping means; and a plurality of second finger means said second finger means comprising: means for separating the inverse spread signal from one antenna of said base station from the signal transmitted from the other antenna of said base station; means for correcting the phase of the respective inverse spread data wherein each of said second finger means includes means for determining the validity for a signal transmitted from each antenna said base station based on the level of an electric field generated by the signal as described above. The AAPA further discloses said second finger means further comprising phase estimating means for calculating a fading vector which is a parameter indicative of a shift in phase from I, Q phase points of expected data for each of the signals

transmitted from the two antennas of said base station, based on the inverse spread data for the signals inversely spread by said respective first finger means (Fig. 2, element 17 & Specification, Page 2, lines 17-25); a first/second phase correcting means connected to said clock supplying means for correcting the phase of inverse spread data for a signal transmitted from one antenna of said base station, out the inverse spread data for the signals inversely spread by said respective first finger means, based on the fading vectors calculated by said phase estimating means (Fig. 2, elements 16, 18-19 & Specification, Page 3, lines 1-13); antenna combining means for combining the inverse spread data corrected for the phase by each of said first and second phase correcting means (Fig. 2, element 20 & Specification, Page 3, lines 14-16).

Shoishiro discloses level measuring means for measuring the level of an electric field generated by each of the signals received and comparing the measured electric field level with a predetermined threshold to determine the validity for each of the signals transmitted from the two antennas said base station, and when determining that of the signals from the two antennas said base station is invalid, turning OFF the fingers based on the validity (Abstract, lines 4-12 & Specification, Page 3, lines 24-40 & Specification, Page 4, lines 1-13 & Specification, Page 5, lines 10-59 & Fig. 1, elements 19-22 & Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that AAPA in view of Shoishiro in further view of Haartsen satisfies the limitation of the claim.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571)-272-3042
 - The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.
 - Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sudhanshu C. Pathak


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER